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## RESEARCH

**Impacto ambiental, trabalho e saúde de pescadores artesanais: a educação popular em foco**

Environmental impact, work and health of artisanal fishermen: popular education in focus

La popular educación en la mira: ambiente, trabajo y la salud de los pescadores artesanales

Crystiane Ribas Batista Ribeiro <sup>1</sup>, Vera Maria Sabóia <sup>2</sup>, Dayane Knupp de Souza <sup>3</sup>

### ABSTRACT

**Objective:** To discuss the working and health conditions of artisanal fishermen of Baía de Guanabara - RJ, Brazil. **Method:** Qualitative research of participant type. The subjects were 35 fishermen and collection instruments used were semi-structured interviews and participant observation. Data were analyzed using thematic analysis. **Results:** Three analytical categories emerged from the study: Dualism in informal work: pleasure and pain; individualism in postmodernity: Union for the liberation and environmental sustainability: health and education. **Conclusion:** The research revealed the richness and potential of fishermen highlighting this specific group, despite the challenges they face, they show the satisfaction and pleasure in the profession, persisting for years and providing them freedom of expression and moments of relaxation. It was possible the action of the nurse in other scenarios. From this study, it was understood the importance of popular education together with the environment, health and work. **Descriptors:** Occupational health, Education, Environmental pollution, Nursing.

### RESUMO

**Objetivo:** Discutir as condições de trabalho e saúde de pescadores artesanais da Baía de Guanabara-RJ, Brasil. **Método:** Pesquisa de natureza qualitativa do tipo participante. Os sujeitos foram 35 pescadores e os instrumentos de coleta utilizados foram entrevista semiestruturada e observação participante. Os dados foram analisados por meio da análise temática. **Resultados:** Emergiram três categorias analíticas do estudo: Dualismo no trabalho informal: prazer e dor; Individualismo na pós-modernidade: união para a libertação; e Sustentabilidade ambiental: saúde e educação. **Conclusão:** A pesquisa revelou a riqueza e a potencialidade dos pescadores. Deu visibilidade a este grupo específico que, apesar dos desafios que enfrenta, destaca a satisfação e o prazer na profissão, que persiste há anos e proporciona liberdade de expressão e momentos de descontração. Ainda, possibilitou a ação da enfermeira em outros cenários. A partir do estudo, compreende-se a importância da educação popular em articulação com o ambiente, a saúde e o trabalho. **Descritores:** Saúde do trabalhador, Educação, Poluição ambiental, Enfermagem.

### RESUMEN

**Objetivo:** Discutir las condiciones de trabajo y salud de los pescadores artesanales de Baía de Guanabara - RJ, Brasil. **Método:** Investigación cualitativa de tipo participante. Los sujetos fueron 35 pescadores y los instrumentos de recolección utilizados fueron entrevistas semi-estructuradas y observación del participante. Los datos fueron analizados mediante análisis temático. **Resultados:** Tres categorías de análisis surgieron del estudio: El dualismo en el trabajo informal: el placer y el dolor, el individualismo, en la posmodernidad: la Unión por la liberación y la sostenibilidad del medio ambiente: la salud y la educación. **Conclusión:** La investigación puso de manifiesto la riqueza y el potencial de los pescadores. Dio visibilidad a este grupo específico, a pesar de los desafíos que enfrentan, destacaron la satisfacción y el placer en la profesión, que persiste por años y les proporciona la libertad de expresión y de momentos de relax. Posibilitó la acción de la enfermera en otros escenarios. Se entiende a partir del estudio la importancia de la educación popular, en relación con el medio ambiente, la salud y el trabajo. **Descriptores:** Salud ocupacional, Educación, Contaminación ambiental, Enfermería.

Article elaborated from the Master's Thesis titled: Environmental impact, work and health of fishermen of Baía de Guanabara - RJ, Brazil: Peer Education as a prevention strategy.

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## INTRODUCTION

**P**opular Education is noticed as an educational system including principles and guidelines to educate focusing on social issues. It is a way of being in the world that underlies social relationships both at work and in education.<sup>1</sup>

This way is related to the belief in man, possibility of change, sharing, strength, resilience, participation and popular organization, constituting an open education system that fosters mobilization, organization and training of the working classes.<sup>2</sup>

When working based on the Popular Education concepts, the nurse must contribute to the exploitation of the participants to develop a critical view, in the individual and collective health care decisions. Then, their challenge is to foster political and social dimension in the teaching-learning context, in order to pedagogical practices take effect that help them to promote the autonomy of the subjects.<sup>3</sup>

In Cassinú Community, popularly known as Favela do Gato in the city of São Gonçalo, by Baía de Guanabara-RJ, there is a colony of artisanal fishermen who carry out fishing activities in local waters.

Baía de Guanabara is considered one of the most Brazilian polluted coastal environments.<sup>4</sup> Then, besides the fishermen being subject to the risks of accidents and diseases, due to the physical effort in this profession and climatic variations, they can get in touch with pathogens, because it is a no sanitation environment.<sup>5</sup>

Studies of this profession reveal all kinds of illness, with negative influence on their economic and social lives. In Magé region (RJ), cases of health problem were identified, including deaths, with waterborne diseases and vectors, as well as mental disorders.<sup>6</sup> Another study on fishermen occupational accidents in Araguacema river in Tocantins, reveals that the main cause of accidents is due to animal injury of aquatic environment at the time of withdrawal of the hook or net, with lower and upper limbs most afflicted.<sup>7</sup>

Understanding the context of life of the fishermen and the real importance of taking as being able to change the reality in which they live, it is believed that the nurse has played a key role in the practice of Popular Education in Health, since the education actions are not restricted to the individual but also to collective issues.

From these reflections, the following question was established: What are the working and health conditions of artisanal fishermen of Cassinú Community? Given the above, the objective of the study was to discuss working and health conditions of these fishermen, with a focus on popular education.

## METHOD

This is a qualitative research of participant type. The study was conducted in Gradim fishing community in the city of São Gonçalo (RJ). The study included 35 male fishermen, aged from 18 to 70 years old. It is noteworthy that the minimum age to work on a vessel is 16 years old<sup>8</sup>. However, we did not have underage participants. Fishermen who had other formal work paid activities as primary income and under alcohol effect at the time of the interview, adversely affecting the flow of information were excluded from the research.

As data collection technique a semi-structured interview was used, which combines closed (or structured) and open questions where the respondent has the possibility to discuss the topic, without answers or fixed conditions by the researcher<sup>9</sup>, adopting one form as a tool. It was also used *the participant observation*, one of the techniques used by researchers who adopt a qualitative approach. It consists of the insertion into the interior of the observed group, becoming part of it, for long periods interacting with the subjects, seeking to share their daily life, to feel how is to be in that situation.<sup>10</sup> In order to substantiate the relevant findings in the field, objective or subjective, it was opted for the adoption of a field journal as a tool.

The interviews were conducted between March and May 2013, with an average of twenty minutes long, usually around six o'clock in the morning, time suggested by the fishermen, when they were returning from fishing. Thus, it was possible to collect data more easily and participate in the moment of auction and sale of fishes.

The data analysis was done through the thematic analysis proposed by Minayo, consisting in discovering the units of meaning that make up a communication whose presence or frequency mean something to the analytic objective.<sup>9</sup> The thematic analysis has three stages, which were followed in this study: 1<sup>st</sup>) The pre-analysis, 2<sup>nd</sup>) Exploration of the material and 3<sup>rd</sup>) Treatment of results and interpretation. Finally there was the aggregation of data in theoretical categories and conducting interpretations, which in the case of this study, took place based on the theoretical reference of Paulo Freire and other scholars.

The project was submitted to the Ethics Committee in Research of the University Hospital Antônio Pedro (UFF) as established by Resolution 466/2012 of the National Health Council and was approved on paragraph CAAE 05017512.1.0000.5243. The fishermen were identified with the letter "F" word initial of fisherman followed by the sequential number of the interview in order to preserve the anonymity asked by them (F1, F2, F3, F4, F5, ... F35).

It should be noted that the research was presented and explained to the subjects and all who agreed to participate signed the Consent and Informed Form. The study did not receive any financial aid or grants and there was no conflict of interest.



RESULTS AND DISCUSSION

There were 35 fishermen interviewed. The survey of socio-clinical and demographic data revealed that the age of the participants ranged from 24 to 68 years old, with an average age of 46.4 years old. As for the birth, 88.6% are from Rio de Janeiro, have an average of 2.3 children and 3.4 dependents. As for education, 34.3% have elementary education complete, and their monthly income in 42.9% of respondents ranged from one to two minimum wages.

The average hours of daily work is 11.8 hours, and the main selling point are the middlemen (88.6%). There were 85.7% of subjects that come into the water during the whole fishing and 71.4% using Personal Protective Equipment (PPE) using it only partially.

The main complaints/diseases identified by the fishermen were back pain (11.4%), knee pain (5.7%), and hypertension (5.7%), besides digestive problems, skin cancer among others.

From the quantification of data obtained through open and subsequent analysis, the units of meaning were grouped and categorized as simplified table below, Table 1, in order to facilitate discussion of emerging topics and the results obtained by simple statistical.

Table 1- Categories for discussion

Dualism in informal work: Pleasure and Pain	Individualism in postmodernity: Union for freedom	Environmental sustainability: Health and Education
“Because we do not have any side benefit.”	“The fisherman has to be more humble.”	“There is no doctor if the guy falls and gets hurt.”
“I live free, I go when I want.”	“Union of the organ.”	“The spill killed many fish.”
“The problem is that we earn little, but it is fun.”	“...fishermen are totally different.”	“It is not worthy anymore, there are no fishes.”
“I have freedom of expression.”	“...fishermen have no union.”	“It is necessary to clean up the Bay ...”.
“It sacrificing and	“Unite more the fishermen.”	“...today is quite different,

dangerous.”  “How will I plan if I earn little with fishing?”	“... Fishermen need to be more humble.”  “...fishermen are little united.”	we have to study.”  “They had to give me some money to help buying medicine.”
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This part of the article will discuss the categories identified in the thematic analysis comparing findings of this study with the literature.

1<sup>st</sup> Category - Dualism in informal work: Pleasure and Pain

The life context of fishermen and the informality of work in study show the neglect of an oppressive society. Neglect of the authorities in relation to health, housing, sanitation, education. Freire, 1987, brings us to the reflection from his speech:

Who better than the oppressed, will be prepared to understand the terrible significance of an oppressive society? Who will feel, rather than them, the effects of oppression? Who, more than they, to understand the need for freedom? Freedom that they will not get by chance, but by the praxis of their searching; the knowledge and recognition of the need to fight for it.<sup>11</sup>

In the statements of the fishermen participants of the research group, it is noticed conflicting views that sometimes reveal the pain of a working class by working conditions and health expected, desired and sometimes the contentment for carrying out an activity that has high personal representative, taught by their parents and giving them pleasure. As a part of the speeches of some fishermen: *I like to be a fisherman because I have freedom of expression (F9); I feel really good when fishing (F27); I love it very much. A hobby, earning a some bucks (F28).*

Among the notes described in a field diary, there is the behavior of some fishermen during the preparation of the material for fishing and their sale place, as relaxed and cheerful. Many of them have been fishing for over 20 years as found in the results, and some started fishing when they were teenagers, when parents were the main responsible for fisheries teachings in their own colony where they grew up. The profession time gives them a significant fishing knowledge, and confidence and acquisition of long-standing partners when going out for fishing.

Speaking about fishing today in Brazil is to enter into the lives of thousands of Brazilians, take advantage of their knowledge, admire their skills, learn to see nature in a unique way. But also it is to understand charms and traditions of a class of workers who overcomes daily challenges as a result of poor working conditions and hard socio-economic reality.

These issues strengthen the link between the fisherman and his profession despite the negative tendencies inherent artisanal fishing today.

Artisanal fishing is characterized by an individual activity or generally formed by groups of family or neighborhood relationships. The organization is structured by knowledge and fishermen's practices regarding: suitable fishing locations; type and use of work tools; traditional weather cast; choice of the fish to be collected due to the economic value, access and fishing periods of their nature; cleaning procedures.<sup>12</sup>

In Brazil, recent data show high number of artisanal fishermen who work informally. This reflects a capitalist society, in which there is centrality in production and profit at the expense of being a worker, however, there would be no production and profit. As described by Marx, 1983:

The reason that drives and the goal that determines the capitalist production process is the greatest possible self-valorization of capital that is the increased production of surplus value, therefore the maximum exploitation of the workforce by the capitalist.<sup>13</sup>

Thus, despite the high number of artisanal fishermen, this category is not protected against the risks in the work with the employer and there is no policy of the Unified Health System (SUS) to ensure actions similar to those found for the employee. This reality is also identified in this study group. As a result of this reality there is the lack of work diseases, keeping invisible and neglected diseases, considering that they persist in the absence of prevention, treatment and rehabilitation actions.<sup>12</sup>

Another dilemma faced by fishermen in the social area favored by labor informality is the low income generated by the artisanal fisheries. The social misery imposes an intense work to generate more products for sale. The more need to ensure the survival, the more overload of work. Despite their effort, many of them cannot even buy their own boat, as reported in interviews, having to give part of the daily income from fishing to the boat owners. The following statements describe the economic challenge they face [...] *Life in the fishing is very difficult, income is low (F15); It is a profession that does not give you return (F13); Fishing is getting very outdated, there are many restricted area for Petrobras (F9).*

With the economic pressure and the lack of conditions to transport their goods to markets, most of them are dependent on middlemen who impose prices far below the real value of the fish they catch. This fact is corroborated by a recent study found low-income by selling the fish to middlemen.<sup>14</sup>

Social problems like these can justify the behavior of some fishermen from this research in alcohol abuse. According to the results found, 88.6% of respondents do alcohol intakes. This percentage, 71% do it every weekend and about 9% ingests alcohol every day.

It is considered a leisure activity by 31.4% of fishermen. Therefore, it is seen as a common and valued activity among them.

## **2<sup>nd</sup> Category - Individualism in postmodernity: Union for freedom**

During interviews and group activity, it was clear fishermen outrage at the disunity of this class of workers when asked about possible ways of action to change the reality of artisanal fishermen, as the lines that follow: *Look, fishermen are all different, fishermen have no union [...] (F6); Helping the fisherman, fisherman is very little united, there is no help for a loan (F13); Do meetings to change, but it is very difficult (F26).*

The situation of lack of union can be one of the factors contributing to the stagnation of socio-political-economic class, as said by Freire, 1987:

Concepts such as union, organization, fighting, are stamped as danger. And indeed they are, but for the oppressors. Is that practicing these concepts is essential for freedom action. After all, as minorities, subjecting majorities in its domain, oppress them, divide them and keep them divided are essential conditions to the continuity of power.<sup>11</sup>

In human history, there was no freedom fight that was not designed by a process, something continuous that culminated with freedom. There is no way to win a battle at random, without a relentless pursuit of victory, an effort, and work for the main purpose of the collective search. However, the individual in capitalist society must always overlap the collective, which creates an increasingly competitive and unfair context.

Thus, precarious employment, stimulating excessive consumption and the logic of insertion of the competition in the education system has contributed to the expansion of inter-human abyss in humanity. The era of consumption, “to have” instead of “to be”, has been an increasingly intense point of the century we live in, putting in question the individualist inserted in a society that gradually becomes full of feelings of lack solidarity, unity and love of each other.

However, the dialogical action is described as a transformation tool of reality of the oppressed. The meeting in which the reflect and act are together to the world to be transformed and humanized, is not simply an act of depositing ideas of a subject in the other, nor warrior discussion among subjects who do not aspire to compromise with the pronunciation of the world.<sup>11</sup> The implicit achievement in dialogue is the world by dialogical subject, world victory for the men's freedom.

The objective of the dialogical action, is to provide the oppressed to exercise an act of accession to the true practice of transforming the unjust reality, recognizing why and how of their current situation. Thus, unified and organized they will transform their weakness, to power recreating the world, making it more human. And also:

If you say the word is to transform the world, if you say the word is not the privilege of a few men, but a right of all men, no one can say



the word alone. Saying it alone means say it to others, a way of saying without them and usually against them. To say the word means, therefore, a men's meeting. This meeting cannot take place in the air, but only in the world to be transformed, it is the dialogue in which reality appears as a mediator of men that dialogue.<sup>11</sup>

It is understood the power of words when is addressed to another in complicity, but also said and thought individualistically. Word that orders the will of a few about the work of many, it creates the name of all things in society where power exists separate from productive work as much as the collective symbolic life. Social worlds where the pronunciation of the word needed distances from the consensus; thinking of it as poetry and thought of collective life without inequality, and the experience of solidarity through differences.<sup>15</sup>

In struggle context to neoliberal globalization, the answer is to promote planetarization (live connecting and connecting with others, that is, living and understanding from the relations in which we are involved and the relationships we studied, relationally) respectful and dignified of men and women of this planet, based on work ethic, communication and solidarity, but also based on an ethic of production that is not based on greed, avarice or usury.<sup>15</sup>

### **3<sup>rd</sup> Category - Environmental sustainability: Health and Education**

The observations and notes in the field diary highlight the environmental impact on the fishermen's lives. The houses on unsanitary environments, the lack of running water, the large amount of domestic waste and industrial effluents, daily thrown on the river and the bay, besides providing risk to health of these workers, they generate great concern regarding to economic issues, since the source of income comes from the fish caught from the bay waters. As the following statements: [...] *Baía de Guanabara needs to change, when you pull the net, tires come out, garbage (F21); I do not think it will get better now, the leak killed a lot of fishes (F12); [...] No expectation. A lot of pollution, fishes scarcity. (F13).*

In fact, it is observed the increasing water pollution in recent decades in Baía de Guanabara Maribondo river, as well as reduction of fishes due to this pollution. Different household items were observed floating in the river, from small objects like plastic bottles to large household items such as sofa, which probably took decades to suffer complete decomposition.

Unfortunately, this reality is not restricted to Cassinú community, not even to Brazil. But man's relationship with the environment has distanced increasingly in contemporary society, which has generated discontent in some social groups.

With the Industrial Revolution, and especially during the Twentieth Century, the growth and expansion of production processes for transformation of energy and materials for production of raw materials and consumer goods have become gigantic, enabling a

growing economic integration between sectors and countries, resulting in population and economic growth worldwide.

Together with this process, there was an environmental and health degradation, contributing increasingly to problems of local pollution, and sometimes global, changing the ecological systems that are critical to economic development and life.<sup>16</sup>

In recent decades the concept of sustainability, that is sustainable development, has expanded as a set of principles manifest searching for a qualified development of a concern: to grow without compromising the ecosystem carrying capacity and its cycles, ensuring social existence and other species in the long term.<sup>17</sup>

In this perspective, there is education linked to sustainability, when it is assumed that there is no social transformation without education. The environmental education in Brazil, is in human development, meaning that is up to them is the knowledge (ecological, scientific, political and social) and the behavior.

This means that the main concept of educational act stopped being only the transmission of knowledge, according to Freire, (1987):

While the concept “banking”, the educator will “fill” the fake students know that are content imposed in practice on the problem, the students will be developing their power to capture and understanding of the world appearing to them in their relations with it, not as a static reality, but as a reality in transformation process.<sup>11</sup>

It is the very educational praxis, the theoretical and practical inseparability of conscious human activity of transforming the world and self-transformation that gains this centrality. This implies to promote continuous reflection on living conditions, in actual practice, as an inherent part of the social process and as an essential element in the promotion of new attitudes and relations that structure society.<sup>17</sup>

Health is another issue closely related to sustainability and identified as deficient by fishermen.

For some time the relationship among development, environment and health is inseparable. A society where poverty and inequality are endemic will always be prone to ecological crises. This is shown in the following lines: *They had to give health insurance, some money to help buying medicine (F29); If it is going to change, it has to change a lot. The fisherman should have the right to loan to buy a net. To facilitate, because to achieve things is hard. There is no doctor if the guy falls and gets hurt (F20).*

Several complaints were identified among fishermen as back pain, knee pain, leg swelling, skin, respiratory, digestive problems, and diseases such as hypertension, diabetes and skin cancer. The statements of fishermen showed total helplessness when it comes to health care. The nearest health center does not meet community expectations, there is a shortage of professionals, and lack of medications, actually there is not the expected and desired care for them.

In a study of artisanal fishermen, it is necessary to expand the health care, with improvements in sanitation and expansion of the Family Health Strategy, which includes

promotion, prevention, recovery, rehabilitation of more frequent diseases and disorders, enabling social participation, as Ministry of Health guidelines.<sup>14</sup>

## CONCLUSION

In recent decades, in addition to increase the risk of damage to the health of fishermen, the environmental degradation has modified working and income conditions with fishing, adversely affecting the socio-economic reality of Cassinú community.

It is important that health professionals contribute to the communities in solving problems overcoming purely technical issues, seeking to go beyond pre-established scenarios. Therefore, the nurse needs to improve in order to participate effectively in the scientific, technological and social development of Brazil. They should challenge their creativity and increasingly qualify so they can get out of conventional care environments, favoring mediation between scientific knowledge and popular knowledge.

Participant observation emerged wealth and the potential of fishermen, giving visibility to this population group, which despite the challenges facing, they highlighted the satisfaction and pleasure in the profession, which persists for years and gives them freedom of expression and moments of relaxation. It is recommended that further studies be carried out with artisanal fishermen to expand health activities in communities. It is understood from this study the importance of education together with the environment, labor and health.

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